

MARINE ALGAE FROM SAN SALVADOR ISLAND, BAHAMAS

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Abstract.—Eighty-nine marine algal species are reported from the coastal areas of San Salvador, Bahamas. The flora represents an assemblage similar to species found in other Bahamian islands, Bermuda, and the tropical coastal area of the southeastern United States.

The island of San Salvador is located along the western margin of the north Atlantic (24°04'N Lat., 74°35'W Long.) and is a part of the Bahamian archipelago (Fig. 1). The island is oval-shaped, approximately 190 km² in size, with an interior that contains numerous saline ponds and lakes and an offshore perimeter interspaced with coral reefs. The island's inland lakes and ponds are about 72% of its total area. These are basically shallow waters less than 2 meters deep, have salinities up to 52‰, and are bordered by extensive growths of mangroves. At Sandy Hook is the entrance of a lone, finger-like extension from the southeastern end of the island that brings tidal waters, confined in Pigeon Creek, within the island's interior. The island's long axis lies north to south with the largest coral reef development along its northwestern, northern, and eastern sides. An assortment of narrow, sandy beaches and rocky beaches form the shoreline.

The land mass of the island and its population are small compared to many other populated Bahamian islands. Only modest development has taken place over the last century. Of note historically, the island is recognized as the site of Columbus' first landing in the New World. However, results of modern-day shipping have left a more direct impact on the sand and rocky beaches of this island. Located directly south and southwest of shipping lanes and current systems, the island's beaches have received an increasing amount of oil products associated with tankers and other large vessels. The intertidal zone shows evidence of various sized tar balls, oil globules, and tar-like substances brought in with the tides. In some of the northern areas of the island, the rocks are covered extensively with these products throughout the intertidal and supralittoral zones. To a much lesser degree, portions of the shallow, infralittoral regions also are affected. In these areas, the "tar" patches have excluded algae and reduced animal populations.

Eighty-nine species were noted during this study. Collections of algal specimens on this island were made during the months of January and Feb-

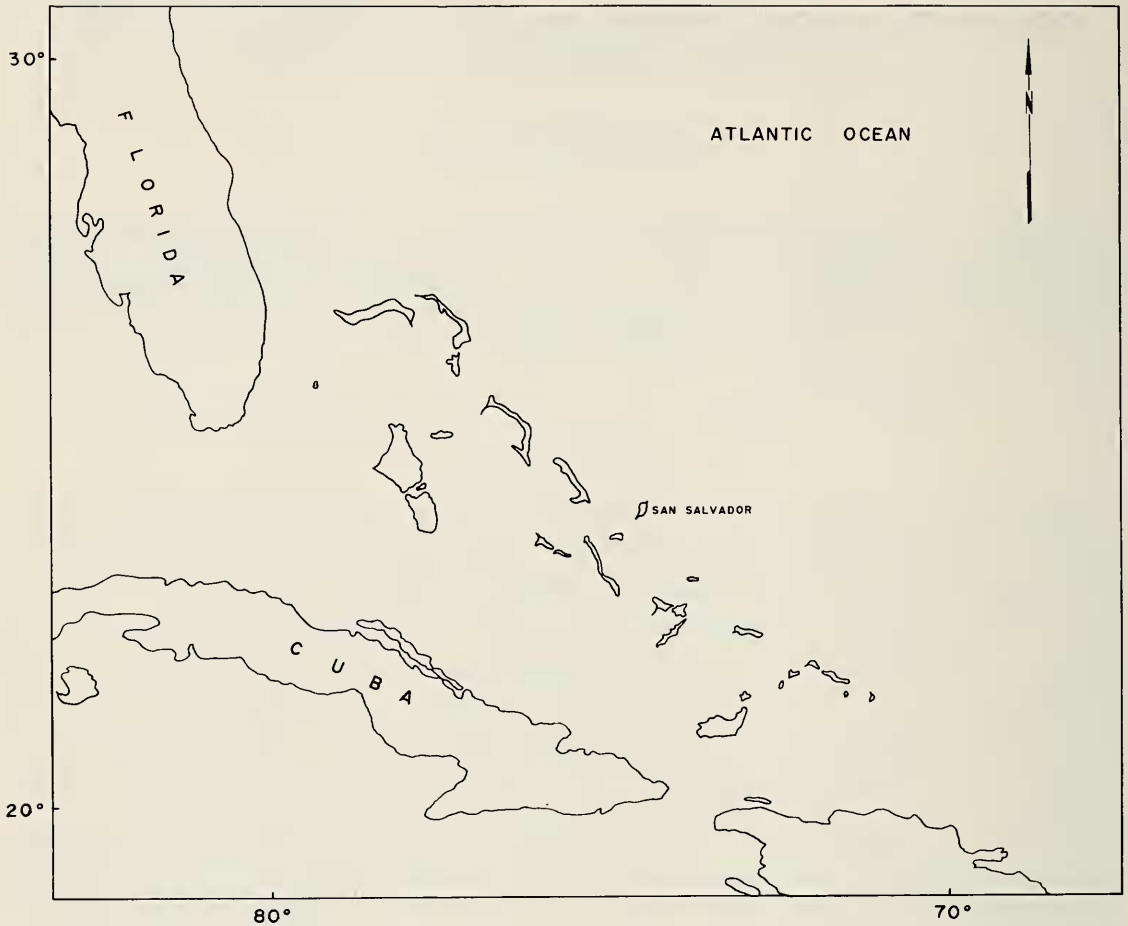


Fig. 1. Location of San Salvador Island (scale 1:3,322,500).

ruary from 1975 through 1978. The collections were mostly based on random visits to sites around the entire island, but did not include deep water dredging. Also not included are many of the coralline Melobeseae, the myxophyceans, and numerous epiphytic species. The following is a preliminary list of the most representative macroalgal forms for the island. Species from the inland, saline lakes will be added in future reports. The algal species are similar to those reported on other tropical coasts within the western north Atlantic (Howe, 1920, 1945; Taylor, 1928, among others), e.g. other Bahamian islands, southeastern Florida, and Bermuda. This is evident in the marine algae found within the sublittoral zone extending from the shoreline to the outer reef margin and among the more quiet waters of sheltered coves. Where island cliffs and rocks are exposed to tidal action along the coasts, algal zonation patterns may be found among the pitted and weathered rocks. The lower intertidal zone has various assemblages of algae that vary with the degree of wave protection and turbulence. An example would be *Cladophora fuliginosa* and *Wrangelia argus* on the more exposed surfaces, with *Cladophora fascicularis*, *Dictyopteris justii* and *Stypopodium zonale*

Table 1.—Location of algae identified from San Salvador Island, Bahamas. Zones: Supra-littoral (SL); upper intertidal (UT); lower intertidal (LT); infralittoral (IL).

	Zones			
	SL	UT	LT	IL
CHLOROPHYCEAE				
Cladophorales				
<i>Cladophora crispula</i> Vickers				X
<i>Cladophora fascicularis</i> (Mertens) Kutzing			X	X
<i>Cladophora fuliginosa</i> Kutzing			X	X
Siphonocladiales				
<i>Acetabularia crenulata</i> Lamouroux				X
<i>Anadyomene stellata</i> (Wulfen) C. Agardh			X	X
<i>Batophora oerstedii</i> J. Agardh				X
<i>Batophora oerstedii</i> v. <i>occidentalis</i> (Harvey) Howe				X
<i>Chamaedoris peniculum</i> (Ellis & Solander) Kuntze				X
<i>Cladophoropsis membranacea</i> (C. Agardh) Børgesen			X	X
<i>Cympolia barbata</i> (Linnaeus) Lamouroux				X
<i>Dasycladus vermicularis</i> (Scopoli) Krasser			X	X
<i>Dictyosphaeria cavernosa</i> (Forsskal) Børgesen			X	X
<i>Halicystis osterhoutii</i> L. R. & A. H. Blinks				X
<i>Neomeris annulata</i> Dickie				X
<i>Neomeris cokeri</i> Howe				X
<i>Neomeris mucosa</i> Howe			X	X
<i>Valonia macrophysa</i> Kutzing				X
<i>Valonia ventricosa</i> J. Agardh				X
Siphonales				
<i>Avrainvillea longicaulis</i> (Kutzing) Murray & Boodle			X	X
<i>Avrainvillea nigricans</i> Decaisne				X
<i>Codium isthmocladum</i> Vickers				X
<i>Codium taylori</i> Silva				X
<i>Caulerpa cupressoides</i> (West) C. Agardh				X
<i>Caulerpa mexicana</i> (Sonder) J. Agardh				X
<i>Caulerpa paspaloides</i> v. <i>compressa</i> (Weber-van Bosse) Howe				X
<i>Caulerpa prolifera</i> (Forsskal) Lamouroux				X
<i>Caulerpa racemosa</i> (Forsskal) J. Agardh				X
<i>Caulerpa sertularioides</i> (Gmelin) Howe				X
<i>Caulerpa verticillata</i> J. Agardh				X
<i>Halimeda incrassata</i> (Ellis) Lamouroux				X
<i>Halimeda lacrimosa</i> Howe				X
<i>Halimeda monile</i> (Ellis & Solander) Lamouroux				X
<i>Halimeda opuntia</i> (Linnaeus) Lamouroux				X
<i>Halimeda tuna</i> (Ellis & Solander) Lamouroux				X
<i>Penicillus capitatus</i> Lamarck				X
<i>Penicillus dumetosus</i> (Lamouroux) Blainville				X
<i>Penicillus pyriformis</i> A. & E. S. Gepp				X
<i>Rhipilia tomentosa</i> Kutzing				X
<i>Rhypocephalus oblongus</i> (Decaisne) Kutzing				X

Table 1.—Continued.

	Zones			
	SL	UT	LT	IL
<i>Rhipocephalus phoenix</i> (Ellis & Solander) Kutzing				X
<i>Udotea cyathiformis</i> Decaisne				X
<i>Udotea flabellum</i> (Ellis & Solander) Lamouroux				X
<i>Udotea spinulosa</i> Howe				X
<i>Udotea sublittoralis</i> Taylor				X
PHAEOPHYCEAE				
Ectocarpales				
<i>Ectocarpus elachistaeformis</i> Heydrich				X
Dictyotales				
<i>Dictyopteris justii</i> Lamouroux			X	X
<i>Dictyota cervicornis</i> Kutzing				X
<i>Dictyota dentata</i> Lamouroux				X
<i>Dictyota dichotoma</i> Lamouroux				X
<i>Dictyota divaricata</i> (Hudson) Lamouroux				X
<i>Padina sanctae-crucis</i> Børgesen				X
<i>Padina vickersiae</i> Hoyt				X
<i>Pocockiella variegata</i> (Lamouroux) Papenfuss				X
<i>Stypopodium zonale</i> (Lamouroux) Papenfuss			X	X
Chordariales				
<i>Elachistea minutissima</i> Taylor				X
Punctariales				
<i>Colpomenia sinuosa</i> (Roth) Derbes and Solier			X	X
Fucales				
<i>Sargassum filipendula</i> C. Agardh				X
<i>Sargassum fluitans</i> Børgesen			(Pelagic)	
<i>Sargassum natans</i> (Linnaeus) J. Meyen			(Pelagic)	
<i>Sargassum platycarpum</i> Montagne			X	
<i>Sargassum pteropleuron</i> Grunow				X
<i>Turbinaria tricostata</i> Barton			X	X
<i>Turbinaria turbinata</i> (Linnaeus) Kuntze			X	X
RHODOPHYCEAE				
Cryptonemiales				
<i>Amphiroa fragilissima</i> (Linnaeus) Lamouroux				X
<i>Corallina subulata</i> Ellis & Solander				X
<i>Fosliella chamaedoris</i> (Foslie & Howe) Howe				X
<i>Fosliella farinosa</i> (Lamouroux) Howe				X
Gigartinales				
<i>Agardhiella tenera</i> (J. Agardh) Schmitz				X
<i>Gracilaria cervicornis</i> (Turner) J. Agardh				X
<i>Gracilaria foliifera</i> (Forsskal) Børgesen				X
<i>Gracilaria verrucosa</i> (Hudson) Papenfuss				X
<i>Hypnea musciformis</i> (Wulfen) Lamouroux				X

Table 1.—Continued.

	Zones			
	SL	UT	LT	IL
Rhodymeniales				
<i>Botryocladia occidentalis</i> (Børgesen) Kylin				X
Ceramiales				
<i>Acanthophora spicifera</i> (Vahl) Brgesen			X	X
<i>Bostrychia montagnei</i> Harvey			X	X
<i>Bostrychia tenella</i> (Vahl) J. Agardh	X	X	X	
<i>Bryothamnion triquetrum</i> (Gmelin) Howe			X	X
<i>Caloglossa leprieurii</i> (Montagne) J. Agardh			X	
<i>Centroceras clavulatum</i> (C. Agardh) Montagne				X
<i>Ceramium subtile</i> J. Agardh				X
<i>Digenia simplex</i> (Wulfen) C. Agardh			X	X
<i>Laurencia obtusa</i> (Hudson) Lamouroux				X
<i>Laurencia papillosa</i> (Forsskal) Greville			X	X
<i>Polysiphonia denudata</i> (Dillwyn) Kutzing				X
<i>Polysiphonia howei</i> Hollenberg		X	X	
<i>Polysiphonia subtilissima</i> Montagne				X
<i>Spermothamnion gorgoneum</i> (Montagne) Bornet				X
<i>Spyridia aculeata</i> v. <i>hypneoides</i> J. Agardh			X	X
<i>Wrangelia argus</i> Montagne			X	X
<i>Wrangelia penicillata</i> C. Agardh				X

found in protected areas. In the upper intertidal zone *Bostrychia tenella* becomes the prominent species with the scattered presence of *Polysiphonia howei* also noted.

Bostrychia tenella extends into the lower margin of the supralittoral zone where it develops primarily within pockets and areas where desiccation is reduced. This area is also occupied by myxophyceans which are the dominant forms in the supralittoral zone.

Pelagic algal forms were common to the shallow water area and washed up on the local beaches. These included *Sargassum fluitans*, *S. natans*, *Turbinaria tricostata*, and *T. turbinata*.

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